1 / 28

FIG. 1

FIG. 2

3 / 28

CLIENT 1
PROG - INST "R1"

106 ⎰ ⎡ • START _ TIME
        • DOC _ OPEN
        • DOC _ CLOSED : 10 PAGES
        • STOP _ TIME

108 ⎰ ⎡ • START _ TIME
        • DOC _ OPEN
        • DOC _ CLOSED : 30 PAGES
        • DWGS MADE = 3
        • STOP _ TIME
        ⋮

100

DISTILLATION   104

102

| M1 | M2 | M3 |

CPU
TIME   # DWGS   # PAGES

CLIENT 2
PROG - INST "R2"

110 ⎡ • • •
      • • •
      • • •
      • • •

112 ⎡ • • •
      • • •
      • • •

114 ⎡ • • •
      • • •
      • • •

DISTILLATION

116

| M4 | M5 |

QUERIES
SERVICED   STOCK
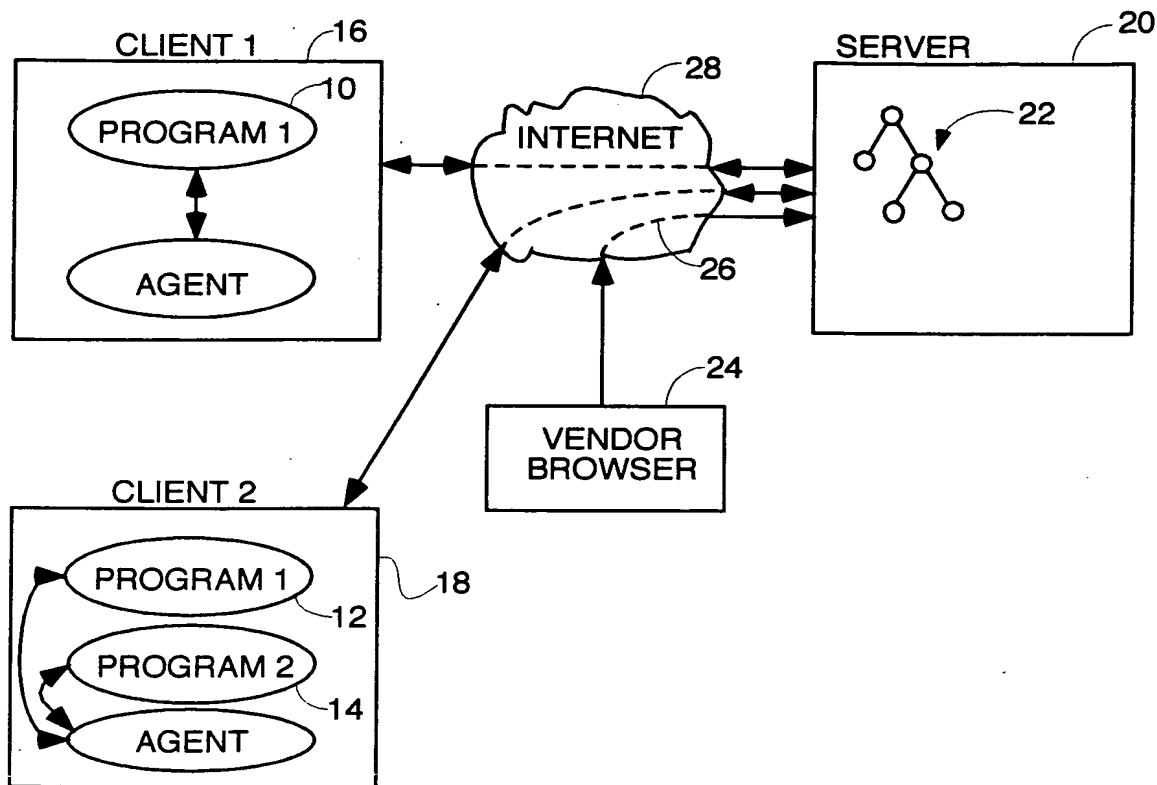   QUOTES
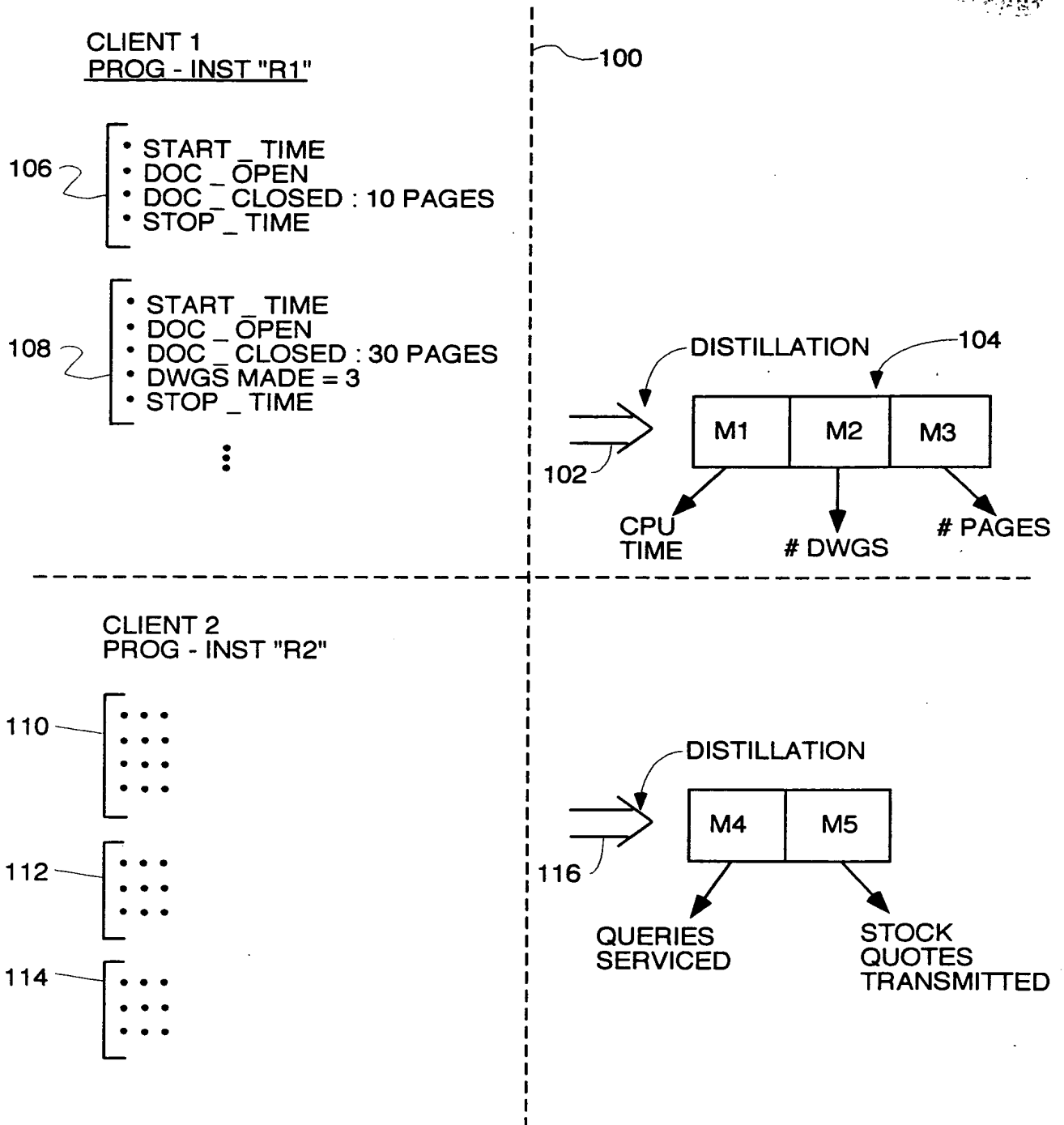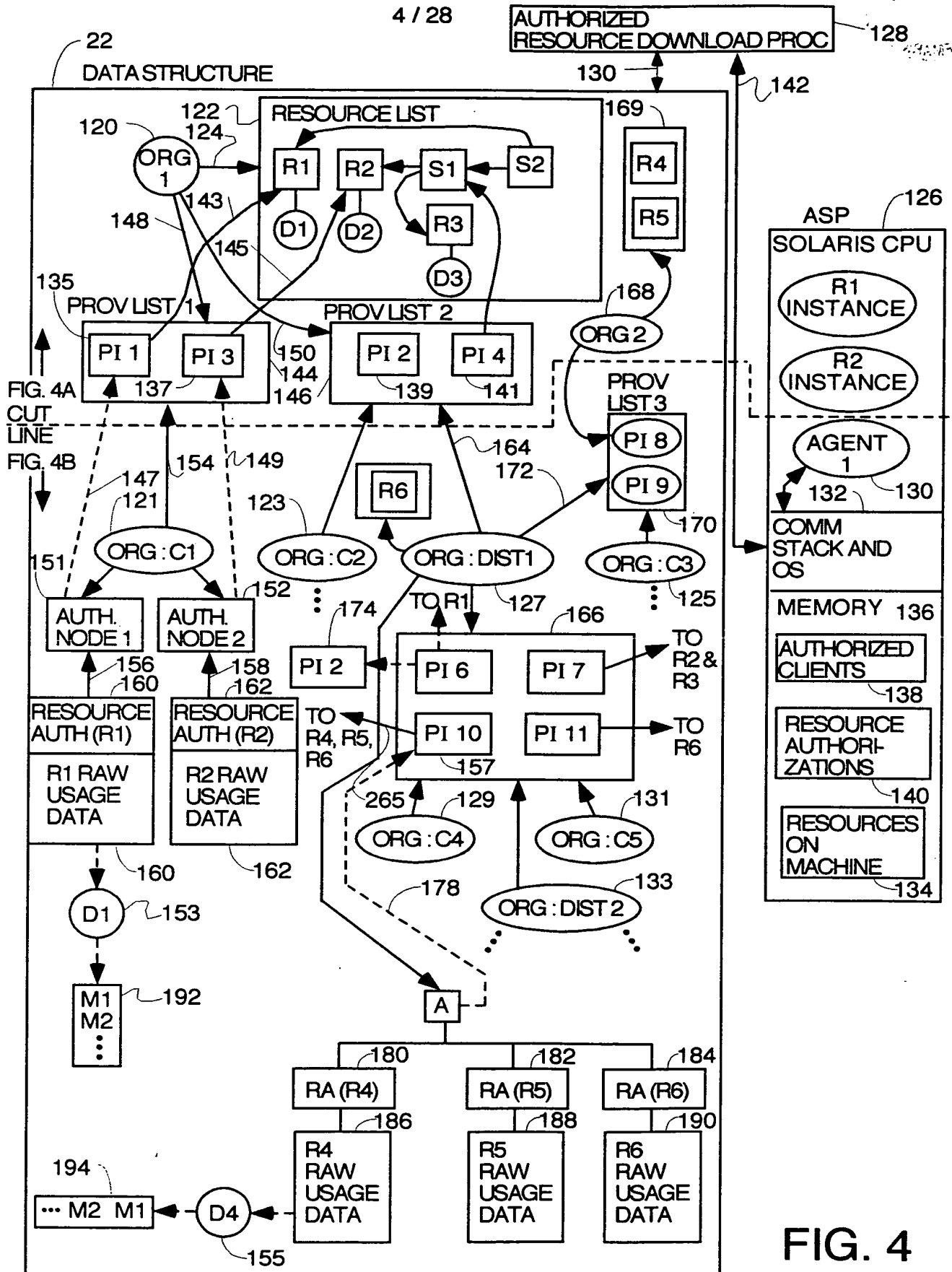   TRANSMITTED

FIG. 3

3

4 / 28

FIG. 4

5 / 28

FIG. 5

6 / 28

OVERALL PROCESS TO DISTILL RAW USAGE DATA TO METRIC DATA
BY A PROGRAMMABLE MAPPING

229

START

231

IS EXECUTION OF
DISTILLATION PROGRAM
REQUESTED?

NO

YES

233

DETERMINE HOW FAR BACK IN THE
USAGE DATA FILE TO GO SO AS TO
PROCESS ONLY NEW USAGE DATA INTO
NEW METRICS OR TO MODIFY METRICS
ALREADY CALCULATED

241

TOTAL USAGE DATA OF EACH
SPECIFIC TYPE OR MAKE SUBTOTAL
OF USAGE DATA OF EACH SPECIFIC
TYPE FOR THE RELEVANT
REPORTING PERIOD

243

FOLLOW POINTER IN
PROVISIONING ITEM TO
BEGINNING OF APPROPRIATE
SPREADSHEET PROGRAM
CONTAINING DISTILLATION
FORMULAS

245

PLUG USAGE DATA TOTALS OR
SUBTOTALS INTO
APPROPRIATE VARIABLES OF
SPREADSHEET AND
CALCULATE FORMULAS AND
STORE METRICS IN
PREDEFINED MEMORY
LOCATIONS (TYPICALLY
PREDEFINED CELLS OF
SPREADSHEET)

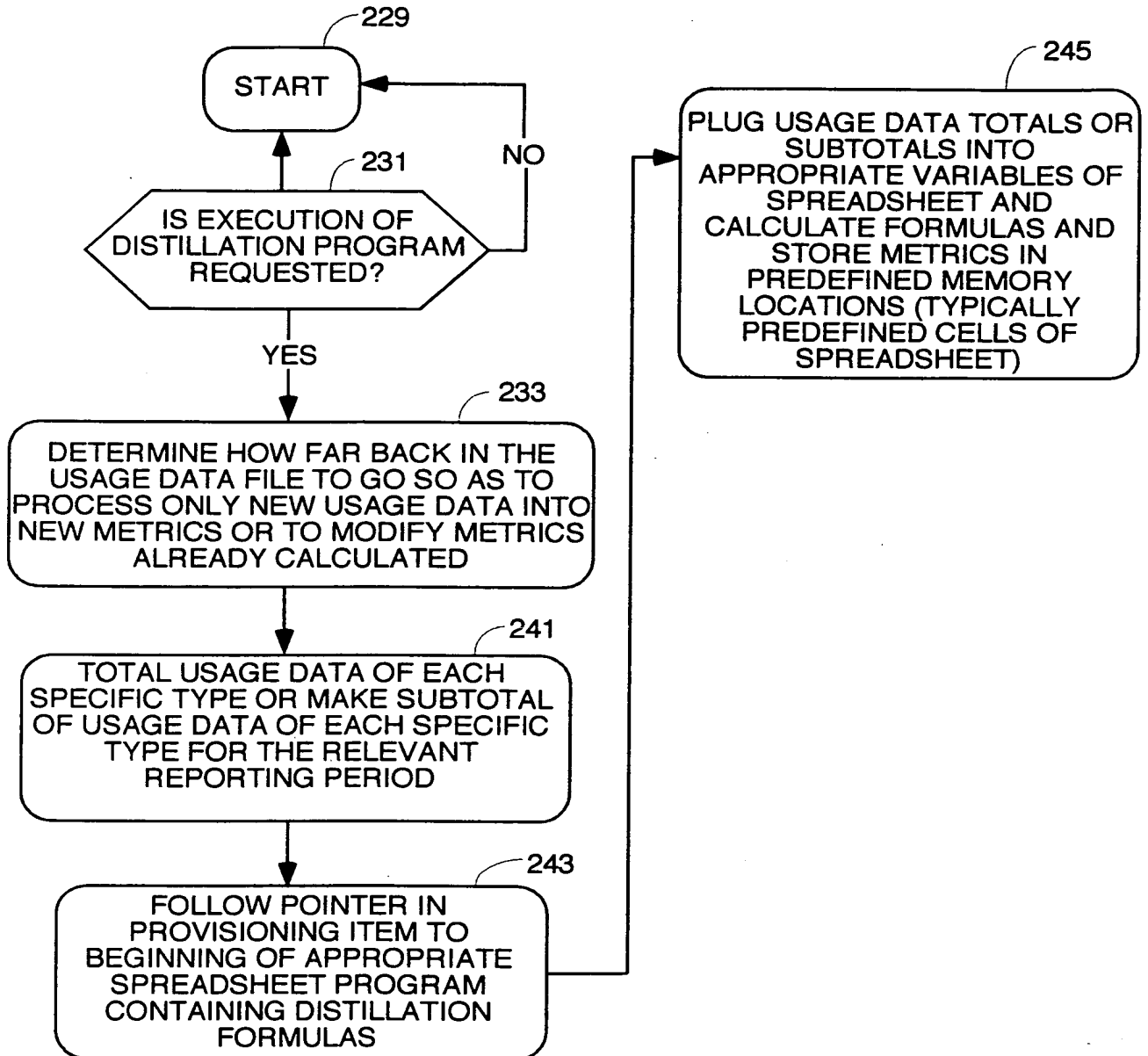FIG. 6A

7 / 28

OVERALL PROCESS TO DISTILL RAW USAGE DATA TO METRIC DATA
BY A PROGRAMMABLE MAPPING USING A PROGRAMMABLE DISTILLATION PGM

229

START

231

IS EXECUTION OF
DISTILLATION PROGRAM
REQUESTED?

NO

YES

233

DETERMINE HOW FAR BACK IN THE
USAGE DATA FILE TO GO SO AS TO
PROCESS ONLY NEW USAGE DATA INTO
NEW METRICS OR TO MODIFY METRICS
ALREADY CALCULATED

249

FOLLOW POINTER TO
BEGINNING OF
APPROPRIATE
DISTILLATION PROGRAM
CONTAINING
APPROPRIATE
DISTILLATION FORMULAS
FOR THIS
RESOURCE
USAGE DATA

235

TOTAL USAGE DATA OF EACH
SPECIFIC TYPE OR MAKE SUBTOTAL
OF USAGE DATA OF EACH SPECIFIC
TYPE FOR THE RELEVANT
REPORTING PERIOD

247

IS THERE CONFIG
DATA CONTROLLING
WHICH DISTILLATION
PROGRAM TO USE?

NO

238

PLUG USAGE DATA
TOTALS OR SUBTOTALS
INTO APPROPRIATE
VARIABLES OF
SPREADSHEET
AND CALCULATE
FORMULAS AND
STORE METRICS IN
PREDEFINED MEMORY
LOCATIONS (TYPICALLY
PREDEFINED CELLS OF
SPREADSHEET)

YES

251

DETERMINE WHICH
DISTILLATION PROGRAM TO
USE FROM CONFIGURATION
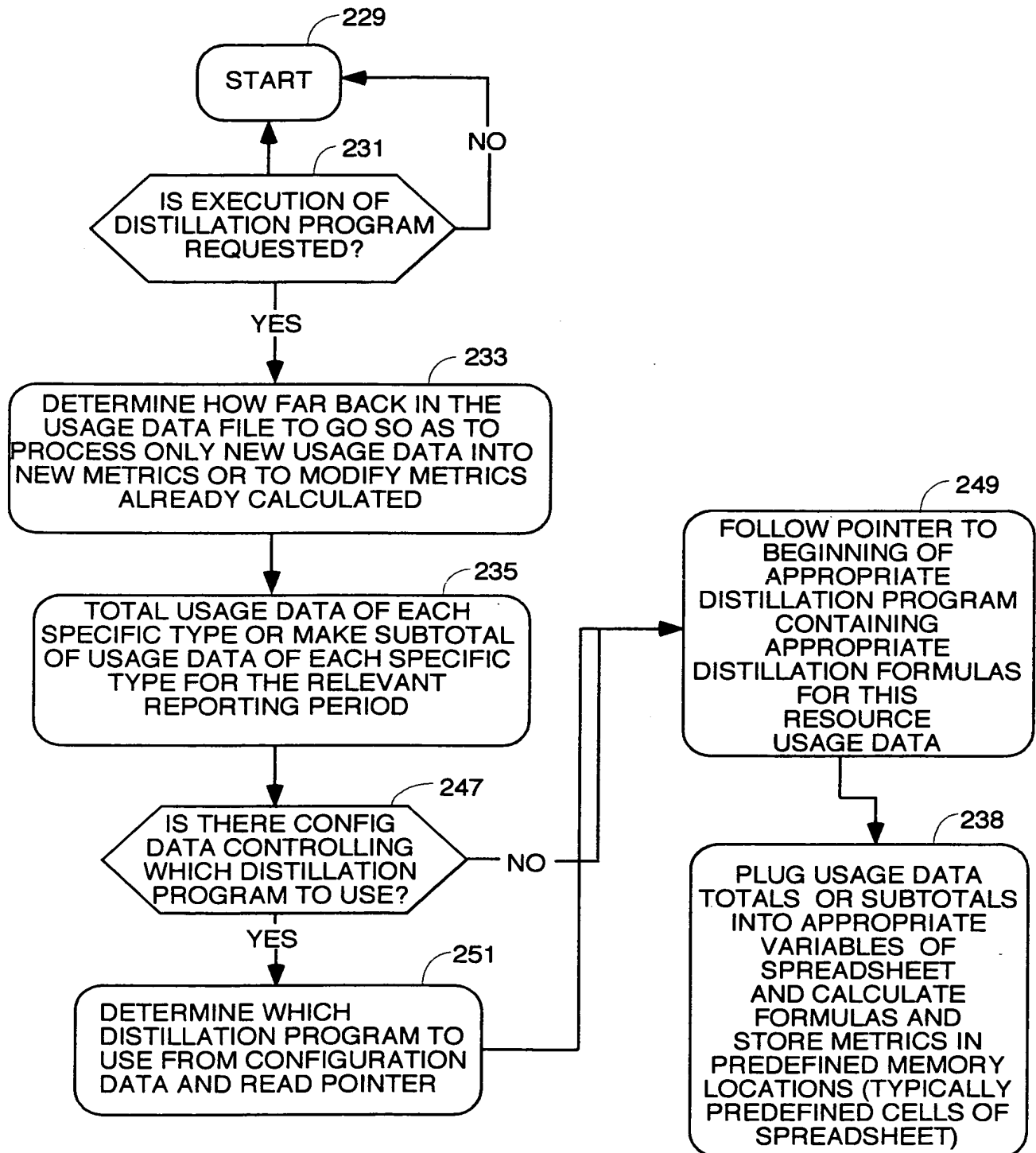DATA AND READ POINTER

FIG. 6B

8 / 28

PROCESS TO PROGRAMMABLY DISTILL RAW USAGE DATA TO METRICS AND PROGRAMMABLY DISTILL THE METRICS INTO CENTRAL SERVICE UNITS OF THE CUSTOMER'S DESIGN

253

PERFORM PROCESS OF FIGURE 6A OR FIGURE 6B OR ANY OTHER SUITABLE PROCESS TO CONVERT RAW USAGE DATA INTO METRIC DATA FOR NEXT USAGE DATA BUFFER

255

DOES DISTILLATION PROGRAM FOR THE USAGE DATA BUFFER JUST PROCESSED CONTAIN A POINTER TO CSU DISTILLATION PROGRAM?

NO →

400

LEAVE METRICS AS THEY ARE

402

DONE-WAIT FOR NEXT LAUNCH OF DISTILLATION PROGRAM

YES

257

FOLLOW POINTERS TO CSU DISTILLATION PROGRAM AND NECESSARY DATA AND PLUG APPROPRIATE METRICS AND PROVISIONING ITEM LICENSE TERMS INTO VARIABLES OF CSU DISTILLATION FORMULAS. THEN DO A DATA INTEGRITY CHECK TO MAKE SURE ALL NECESSARY METRIC DATA IS AVAILABLE

259

IS ALL NECESSARY METRIC DATA AVAILABLE?

NO

261

EVALUATE CSU DISTILLATION PROGRAM FORMULAS WITH NEW METRIC VARIABLE VALUES AND OUTPUT CSU REPORT

FIG. 7

Serial No.: 10/002,557   Inventor: RAMACHANDRAN , et al.   Docket No.: COM-002.4D
Title: PROCESS IN A USAGE BASED LICENSING SERVER TO CONVERT METRIC DATA IN DATA
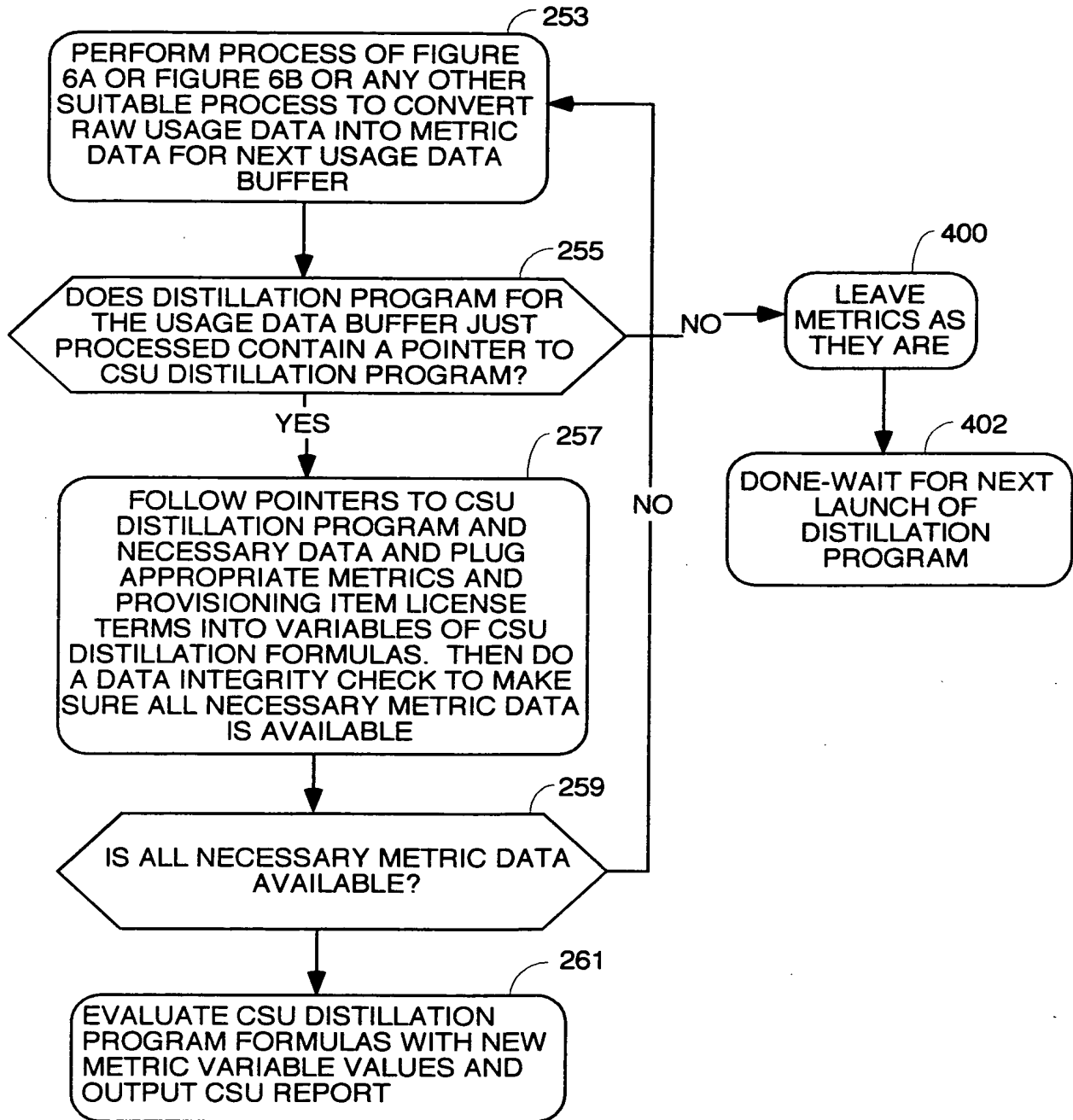   STRUCTURE TO CSU DATA

9 / 28

OVERALL PROCESS TO COLLECT RAW USAGE DATA IN A CENTRAL SERVER
AND USE IT TO PREPARE METRICS AND PREPARE INVOICES OR REPORTS
THEREFROM

230

USE A MONITORING OR AGENT
PROGRAM INSTALLED ON ONE
OR MORE COMPUTERS AT THE
DISTRIBUTED SITES OF LICENSEES
TO MEASURE USAGE OF ONE
OR MORE RESOURCES THAT HAVE
BEEN LICENSED TO LICENSEE ON A
USAGE-BASED BASIS,
SAID RESOURCES INSTALLED
ON SAID ONE OR MORE COMPUTERS
AT THE DISTRIBUTED SITES
OF SAID LICENSEES

238

ALLOWING AUTHORIZED
PERSONS TO HAVE ACCESS
TO SAID RAW USAGE DATA
AND/OR SAID METRIC DATA,
AND PREPARING REPORTS
AND/OR INVOICES FROM
SAID METRIC DATA

232

TRANSMITTING ALL SAID USAGE
DATA GATHERED BY SAID
MONITORING PROGRAMS TO A
CENTRAL USAGE
MEASURING SERVER

234

RECEIVING AND STORING SAID
USAGE DATA IN SEGREGATED
BUFFERS IN A DATA STRUCTURE
COUPLED TO SAID SERVER, EACH
BUFFER RECORDING USAGE DATA BY
ONE LICENSEE OF ONE RESOURCE
OVER AN INTERVAL REFLECTED IN
SAID USAGE DATA

236

USING AN APPROPRIATE
DISTILLATION PROGRAM FOR
EACH RESOURCE
CORRESPONDING TO A
PARTICULAR BUFFER TO
PROCESS THE RAW USAGE DATA
THEREIN INTO METRIC DATA,
AND STORING SAID METRIC DATA
IN SAID DATA STRUCTURE

FIG. 8

Serial No.: 10/002,557   Inventor: RAMACHANDRAN , et al.   Docket No.: COM-002.4D
Title: P●●SS IN A USAGE BASED LICENSING SERVER TO C●●●T METRIC DATA IN DATA
         S●●●TURE TO CSU DATA
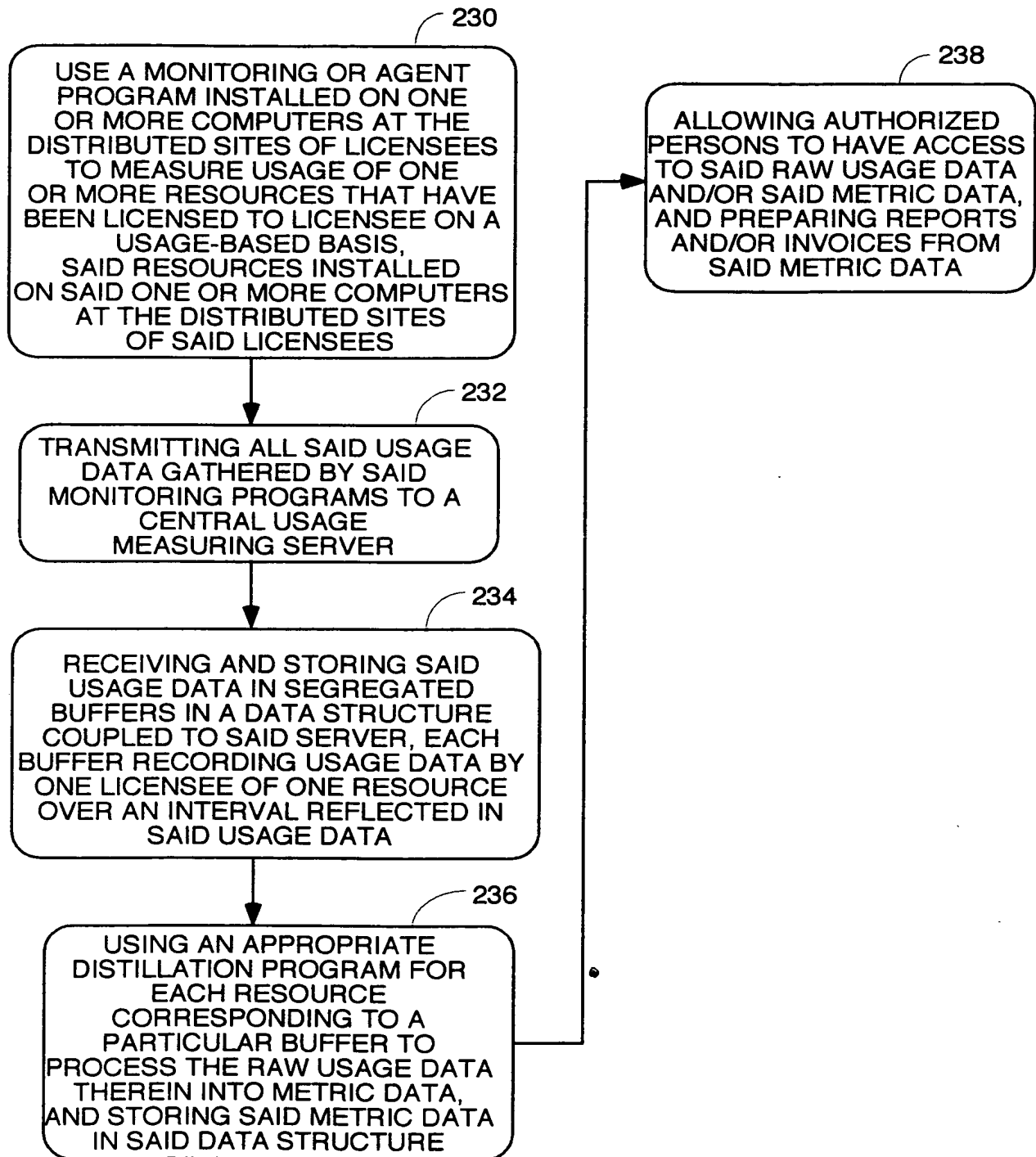
10 / 28

PROCESS TO BUILD USAGE MEASURING SERVER DATA STRUCTURE AND ALLOW RESTRICTED ACCESS THERETO

264

RECEIVING LOG-IN COMMUNICATIONS FROM A REMOTE USER CONTAINING A USER NAME AND PASSWORD

266

USING THE USER NAME AND PASSWORD TO AUTHENTICATE THE USER'S IDENTITY

270

SEND ACCESS DENIED MESSAGE

◄— NO —

268

IS THE USER AUTHENTIC?

YES

272

SEND INQUIRY TO USER REQUESTING HIM TO IDENTIFY WHICH CLIENT(S) AND/OR WHICH RESOURCE(S) IS/ARE OF INTEREST TO VIEW/DOWNLOAD/MODIFY AND, IF METRIC, USAGE OR CSU DATA IS OF INTEREST, WHICH OF THE METRIC, RAW USAGE AND/OR CSU DATA THE USER WANTS TO VIEW AND/OR DOWNLOAD

274

USER IDENTIFIES CLIENT(S) AND RESOURCE(S) OF INTEREST TO VIEW/DOWNLOAD/MODIFY AND, IF APPROPRIATE, WHICH METRIC AND/OR USAGE DATA AND/OR CSU DATA SHE WANTS TO VIEW OR DOWNLOAD

276

USAGE MEASURING SERVER CONSULTS CONFIGURATION DATA TO DETERMINE IF THE USER HAS ACCESS TO THE DATA FOR THE CLIENT AND RESOURCE IDENTIFIED BY THE USER, AND, IF ACCESS TO METRIC, RAW USAGE AND/OR CSU DATA HAS BEEN REQUESTED, WHETHER ACCESS IS AUTHORIZED

TO FIG. 9B

FIG. 9A

FROM FIG. 9A

280

SEND ACCESS
DENIED MESSAGE

◄—NO

278

DOES THIS USER HAVE ACCESS TO
DATA FOR THE CLIENT(S) AND
RESOURCE(S) IDENTIFIED BY THE
USER?

YES

282

SEND REQUESTED DATA TO USER
FOR VIEWING OR DOWNLOAD

284

SENDING A MESSAGE INQUIRING
WHETHER THE USER HAS ANY NEW
RESOURCES OR CLIENTS OR
PROVISIONING ITEMS OR PROVISIONING
LISTS TO DECLARE

288

DONE

◄—NO

286

NEW RESOURCES OR CLIENTS,
ETC. TO DECLARE?

YES

290

REQUEST TRANSMISSION OF IDENTITY OF
RESOURCE(S) AND OTHER ATTRIBUTES
THEREOF AND/OR IDENTITY OF NEW
CLIENT(S) AND ATTRIBUTES THEREOF AND
RECEIVED TRANSMITTED DATA IN
RESPONSE

292

CREATE NEW DATA ENTRIES IN DATA
STRUCTURE MEMORIALIZING NEW
RESOURCE(S) AND/OR NEW CLIENTS
AND THEIR ATTRIBUTES AND
RELATIONSHIPS TO OTHER DATA
ENTRIES IN DATA STRUCTURE

FIG. 9B

12 / 28

FIG. 10

Serial No.: 10/002,557   Inventor: RAMACHANDRAN , et al.   Docket No.: COM-002.4D
Title: P●●●●S IN A USAGE BASED LICENSING SERVER TO C●●●●T METRIC DATA IN DATA
        ST●●●TURE TO CSU DATA
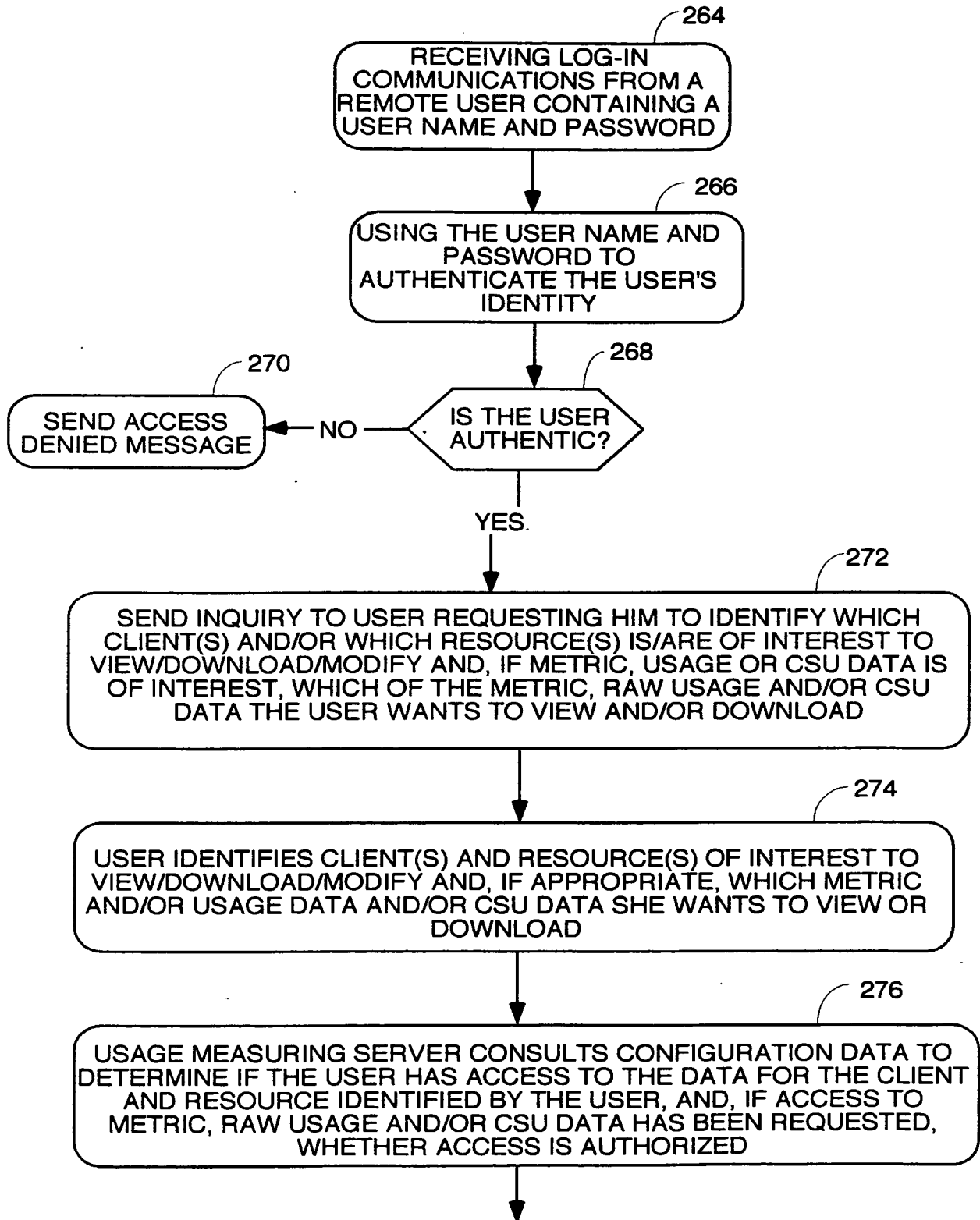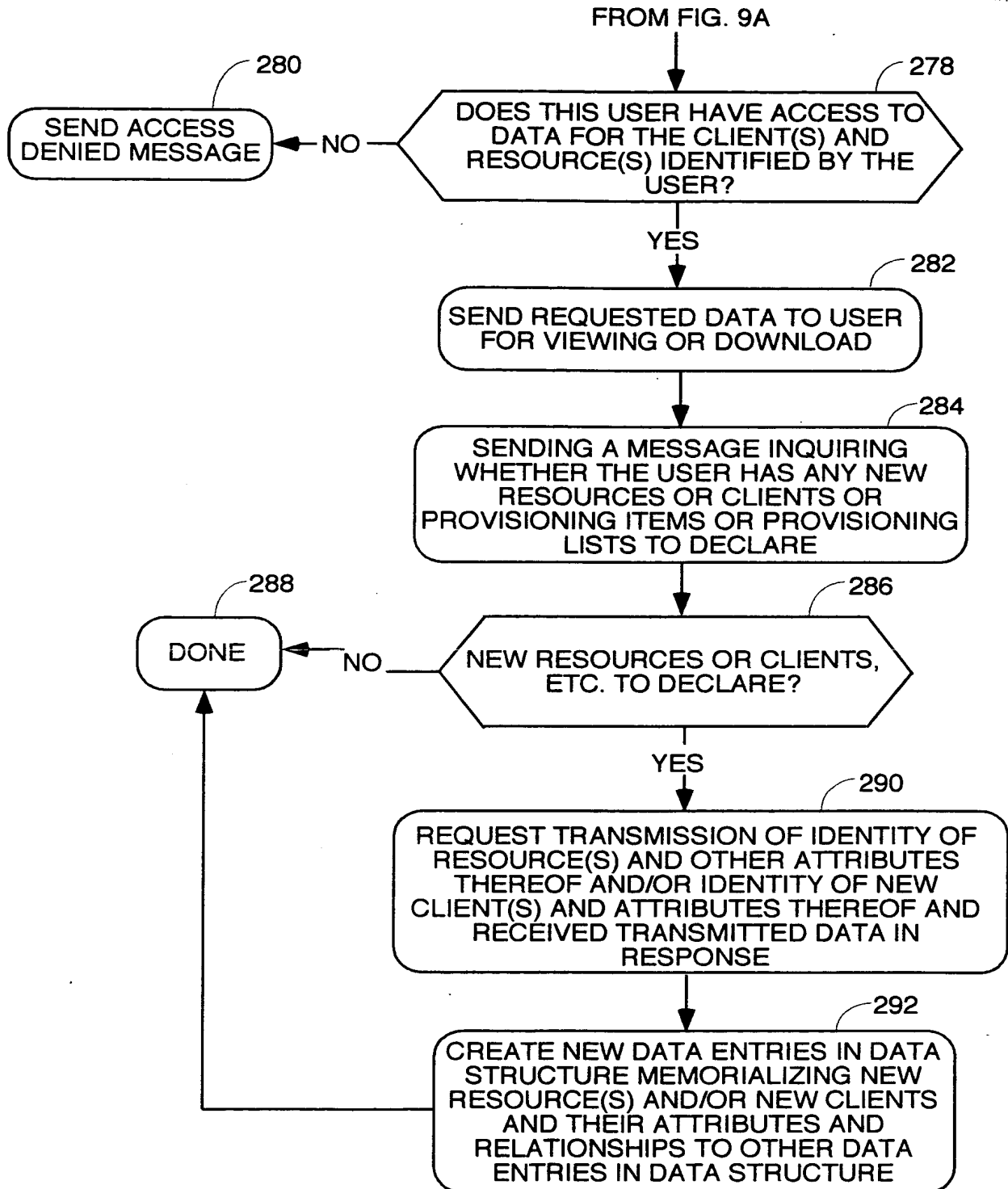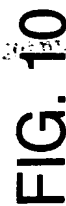
13 / 28

ALTERNATIVE PROCESS TO PROGRAMMABLY DISTILL RAW USAGE DATA TO
METRICS AND PROGRAMMABLY DISTILL THE METRICS INTO CENTRAL
SERVICE UNITS USING A CSU DISTILLATION PROGRAM LINKED TO
PROVISIONING ITEM DETAILING LICENSE TERMS

253
PERFORM PROCESS OF FIGURE
6A OR FIGURE 6B OR ANY OTHER
SUITABLE PROCESS TO CONVERT
RAW USAGE DATA INTO METRIC
DATA FOR NEXT USAGE DATA
BUFFER

404
DOES THE PROVISIONING ITEM LINKED TO
THE USAGE DATA BUFFER JUST PROCESSED
CONTAIN A POINTER TO CSU DISTILLATION
PROGRAM?

NO →

400
LEAVE
METRICS AS
THEY ARE

402
DONE - WAIT
FOR NEXT
LAUNCH OF
DISTILLATION
PROGRAM

YES

257
FOLLOW POINTERS TO CSU
DISTILLATION PROGRAM AND
NECESSARY DATA AND PLUG
APPROPRIATE METRICS AND
PROVISIONING ITEM LICENSE
TERMS INTO VARIABLES OF CSU
DISTILLATION FORMULAS. THEN DO
A DATA INTEGRITY CHECK TO MAKE
SURE ALL NECESSARY METRIC DATA
IS AVAILABLE

NO

259
IS ALL NECESSARY METRIC DATA
AVAILABLE?

261
EVALUATE CSU DISTILLATION
PROGRAM FORMULAS WITH NEW
METRIC VARIABLE VALUES AND
OUTPUT CSU REPORT

FIG. 11

Serial No.: 10/002,557   Inventor: RAMACHANDRAN , et al.   Docket No.: COM-002.4D
Title: PROCESS IN A USAGE BASED LICENSING SERVER TO CONVERT METRIC DATA IN DATA
          STRUCTURE TO CSU DATA
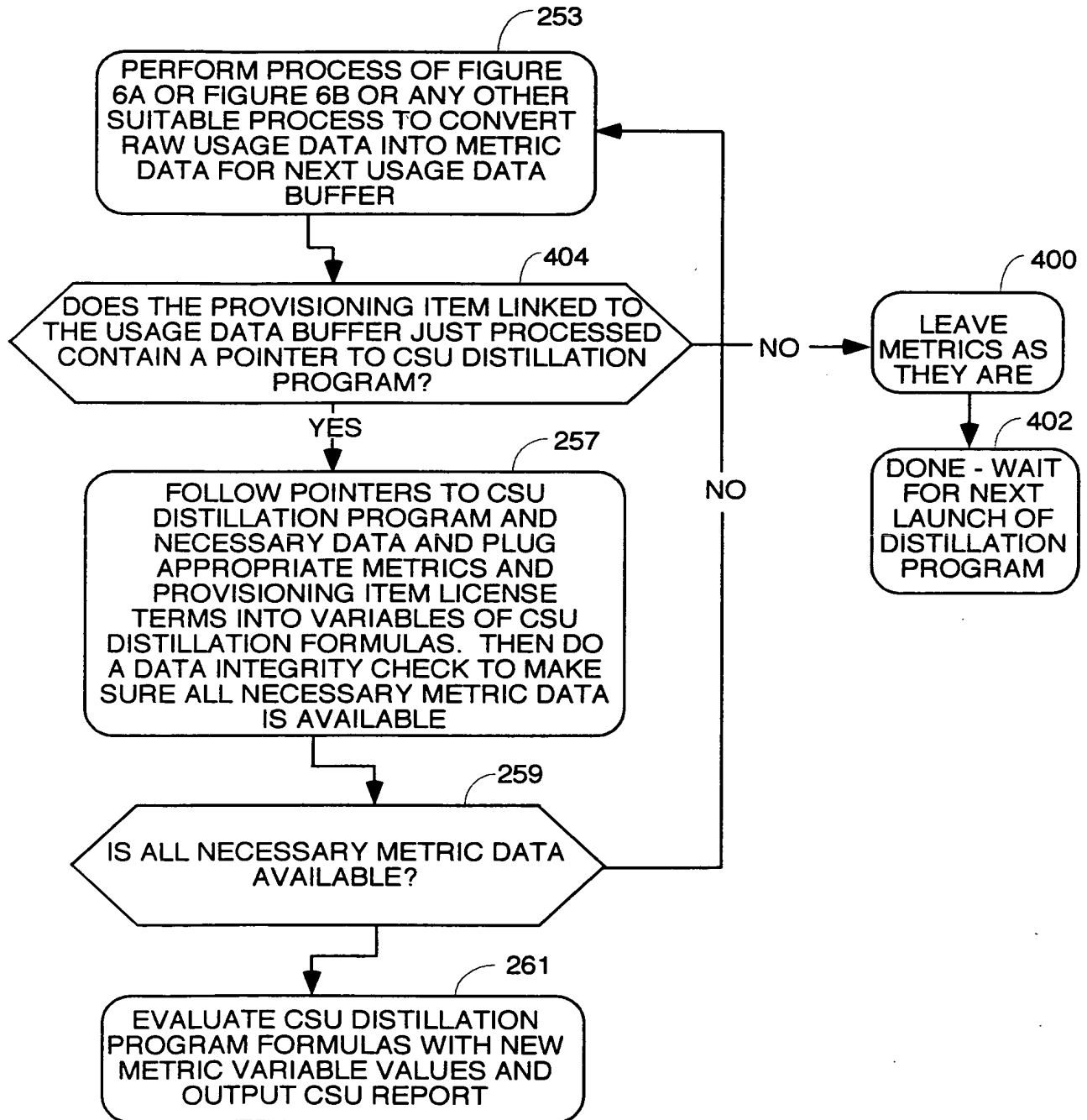
14 / 28

ALTERNATIVE PROCESS TO PROGRAMMABLY DISTILL RAW USAGE DATA TO
METRICS AND PROGRAMMABLY DISTILL THE METRICS INTO CENTRAL
SERVICE UNITS USING A CSU DISTILLATION PROGRAM LINKED TO THE
USAGE DATA BUFFER OF EACH CLIENT THAT WANTS CSU BASED REPORTS

253

PERFORM PROCESS OF FIGURE
6A OR FIGURE 6B OR ANY OTHER
SUITABLE PROCESS TO CONVERT
RAW USAGE DATA INTO METRIC
DATA FOR NEXT USAGE DATA
BUFFER

406

DOES THE USAGE DATA BUFFER JUST
PROCESSED CONTAIN A POINTER TO CSU
DISTILLATION PROGRAM AND/OR CONSTANT
VALUES TO PLUG INTO CSU DISTILLATION
PROGRAM?

NO

400

LEAVE
METRICS AS
THEY ARE

402

DONE - WAIT
FOR NEXT
LAUNCH OF
DISTILLATION
PROGRAM

YES   257

FOLLOW POINTERS TO CSU
DISTILLATION PROGRAM AND
NECESSARY DATA AND PLUG
APPROPRIATE METRICS AND
PROVISIONING ITEM LICENSE
TERMS INTO VARIABLES OF CSU
DISTILLATION FORMULAS AND PLUG
CONSTANTS FOR THIS CLIENT IN IF
ANY ARE STORED IN USAGE BUFFER.
THEN DO A DATA INTEGRITY CHECK
TO MAKE SURE ALL NECESSARY
METRIC DATA IS AVAILABLE

NO

259

IS ALL NECESSARY METRIC DATA
AVAILABLE?

261

EVALUATE CSU DISTILLATION
PROGRAM FORMULAS WITH NEW
METRIC VARIABLE VALUES AND
OUTPUT CSU REPORT

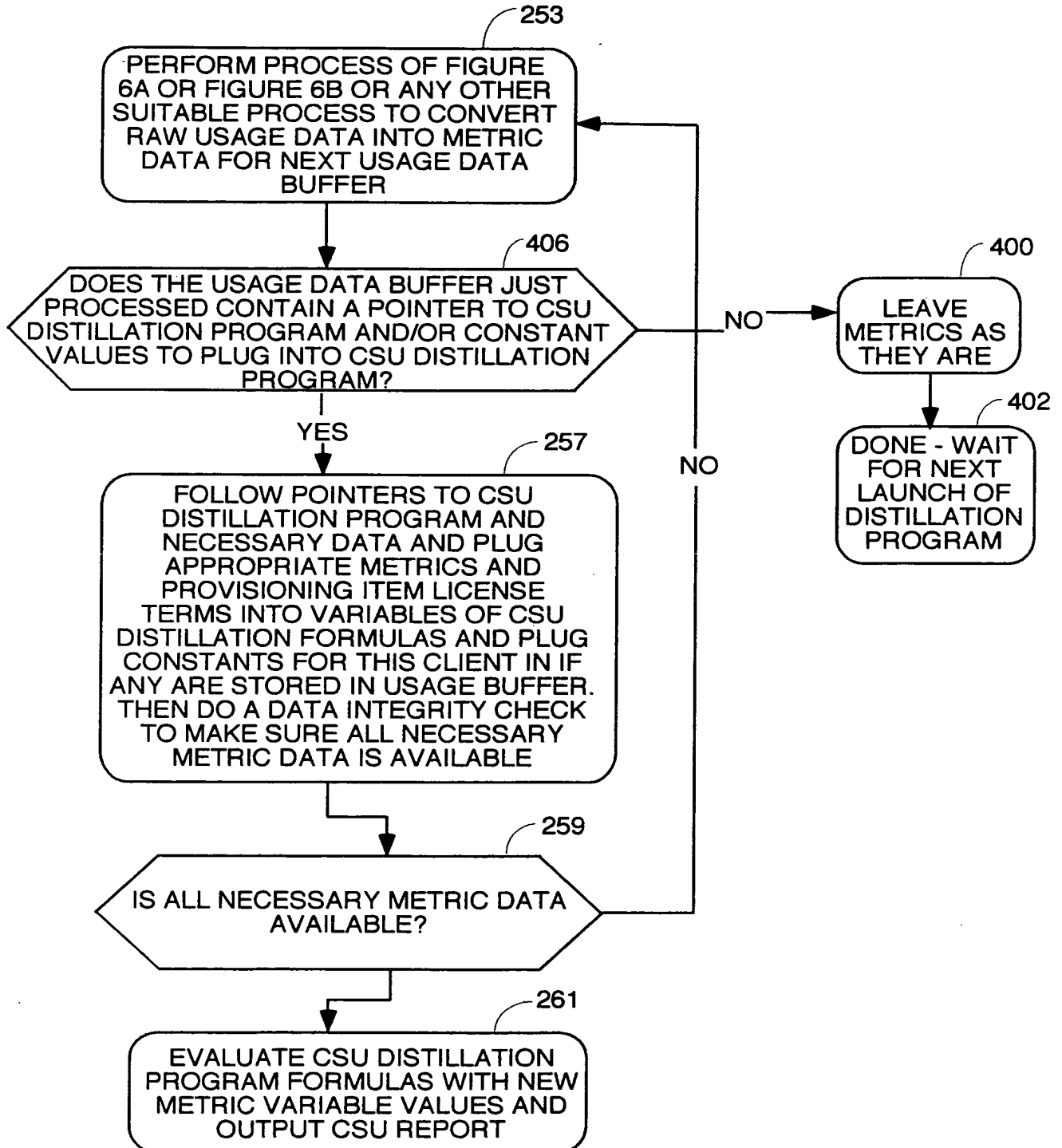FIG. 12

PROCESS TO CREATE DATA STRUCTURE TO SUPPORT SUITE LICENSING AND
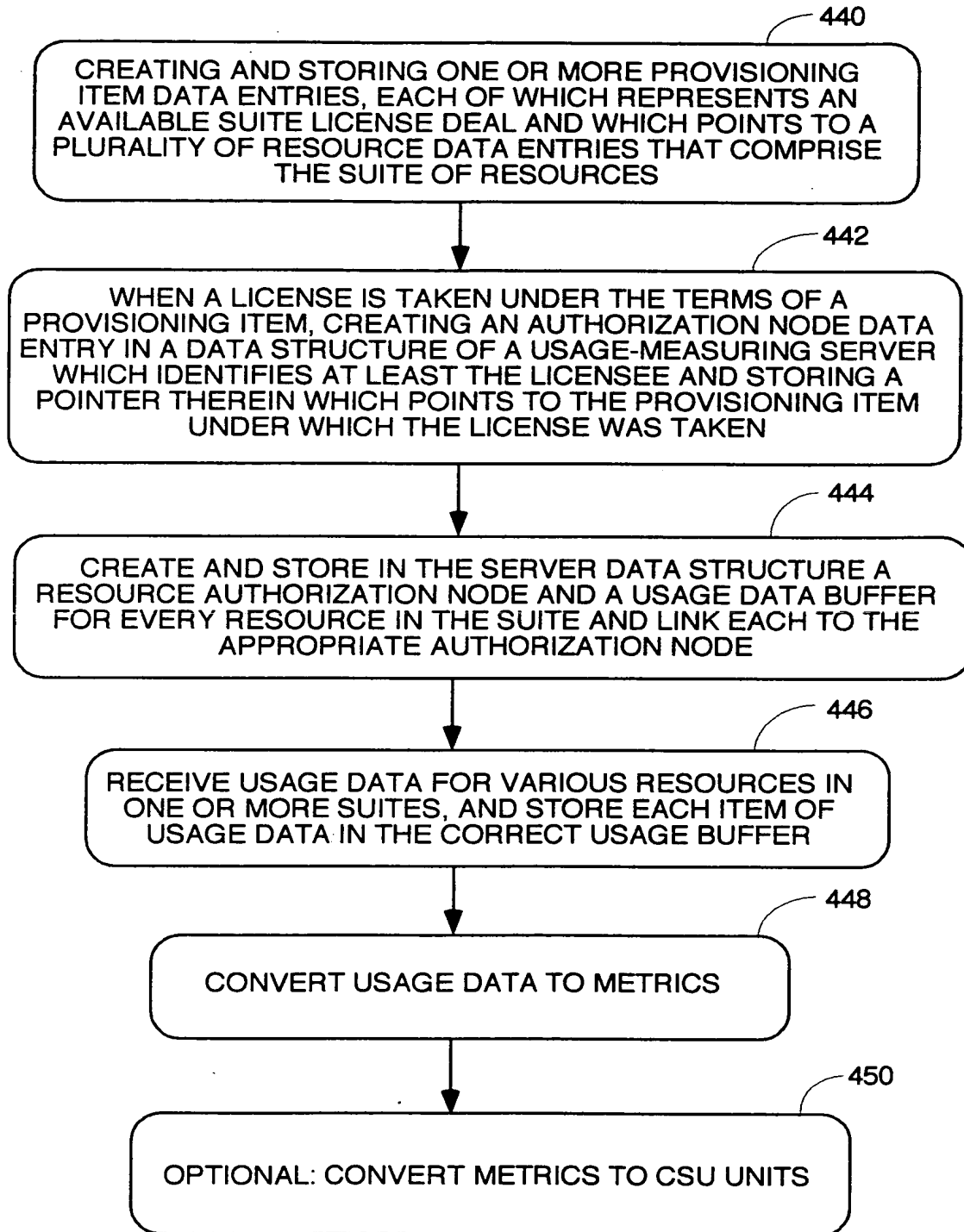TO USE THE DATA STRUCTURE TO IMPLEMENT SUITE LICENSING

440

CREATING AND STORING ONE OR MORE PROVISIONING
ITEM DATA ENTRIES, EACH OF WHICH REPRESENTS AN
AVAILABLE SUITE LICENSE DEAL AND WHICH POINTS TO A
PLURALITY OF RESOURCE DATA ENTRIES THAT COMPRISE
THE SUITE OF RESOURCES

442

WHEN A LICENSE IS TAKEN UNDER THE TERMS OF A
PROVISIONING ITEM, CREATING AN AUTHORIZATION NODE DATA
ENTRY IN A DATA STRUCTURE OF A USAGE-MEASURING SERVER
WHICH IDENTIFIES AT LEAST THE LICENSEE AND STORING A
POINTER THEREIN WHICH POINTS TO THE PROVISIONING ITEM
UNDER WHICH THE LICENSE WAS TAKEN

444

CREATE AND STORE IN THE SERVER DATA STRUCTURE A
RESOURCE AUTHORIZATION NODE AND A USAGE DATA BUFFER
FOR EVERY RESOURCE IN THE SUITE AND LINK EACH TO THE
APPROPRIATE AUTHORIZATION NODE

446

RECEIVE USAGE DATA FOR VARIOUS RESOURCES IN
ONE OR MORE SUITES, AND STORE EACH ITEM OF
USAGE DATA IN THE CORRECT USAGE BUFFER

448

CONVERT USAGE DATA TO METRICS

450

OPTIONAL: CONVERT METRICS TO CSU UNITS

FIG. 13

Serial No.: 10/002,557   Inventor: RAMACHANDRAN , et al.   Docket No.: COM-002.4D
Title: P●●SS IN A USAGE BASED LICENSING SERVER TO C●●T METRIC DATA IN DATA●
         ST●●●TURE TO CSU DATA

16 / 28

ONE STOP SHOPPING PROCESS TO DETERMINE ALL AVAILABLE LICENSE DEALS ON A PARTICULAR RESOURCE

470

CUSTOMER LOGS IN AND PROVIDES AUTHENTICATION USER NAME AND PASSWORD

472

USAGE MEASURING SERVER AUTHENTICATES USER AND TRANSMITS DATA TO USER PROVIDING A WEB INTERFACE WHICH ALLOWS USER TO SELECT A LINK OR ISSUE A COMMAND TO SHOP ALL AVAILABLE DEALS

474

USAGE MEASURING SERVER TRANSMIT DATA TO DISPLAY A LIST OF ALL RESOURCES AVAILABLE FOR LICENSING

476

USER PICKS A RESOURCE TO SHOP AND CLICKS ON IT OR OTHERWISE SENDS A MESSAGE TO INDICATE SELECTION

478

SERVER RECEIVES MESSAGE SELECTING RESOURCE AND ACCESSES DATA ENTRY FOR SELECTED RESOURCE

480

SERVER FOLLOWS POINTERS FROM SELECTED RESOURCE DATA ENTRY TO ALL PROVISIONING ITEMS THAT POINT TO SAID RESOURCE DATA ENTRY AND WHICH RECORD AN AVAILABLE LICENSE FROM A VENDOR OR DISTRIBUTOR OF THAT RESOURCE

482

SERVER ACCESSES LICENSING TERM DATA IN EACH PROVISIONING ITEM AND SENDS MESSAGE(S) TO CLIENT LISTING EACH AVAILABLE LICENSE AND ITS TERMS

484

CLIENT SELECTS A LICENSE AND SENDS A MESSAGE BACK

486

OPTIONAL: SERVER RECEIVES MESSAGE AND AUTOMATICALLY ESTABLISHES AN AUTHORIZATION NODE FOR THAT CLIENT LINKED TO THE PROVISIONING ITEM FOR THE SELECTED LICENSE DEAL AND AUTOMATICALLY CREATES A RESOURCES AUTHORIZATION NODE AND USAGE DATA BUFFER FOR EACH RESOURCE LICENSED UNDER THE PROVISIONING ITEM 486

FIG. 14

17 / 28

R1 — 500

ORG : SELLER — 502

PI 1 — 504

ORG : BUYER — 506

508 — A

RA (R1) — 510

524   USAGE DATA BUFFER — 512

N1

530
N3

N2 — 526   ... — 556
                        ROLLUP A

532   N4   562   ... — 558
                 N5   ROLLUP B

522   N6 — 528   N7   ... — 560
                          ROLLUP C

TIME
OF
REPORTING

⋮   ⋮   N8   ...

Y

MON   TUES   WED

514   516   518 — 520   534

X   D1

537

MON   TUES   WED

536

M1   M1   M1   ...

542   M2   M2   M2

538   M3   M3   M3
              ⋮   ⋮   ⋮

540

FIG. 15

Serial No.: 10/002,557   Inventor: RAMACHANDRAN , et al.   Docket No.: COM-002.4D
Title: PROCESS IN A USAGE BASED LICENSING SERVER TO CONVERT METRIC DATA IN DATA STRUCTURE TO CSU DATA

18 / 28

PROCESS TO COLLECT USAGE DATA, PARTITION IT INTO TIME SEGMENTS AND GENERATE METRICS THEREFROM

544

USE AGENT PROGRAM TO COLLECT USAGE DATA ON EACH RESOURCE AND TIME AND DATE OF EACH USE AND SENDING THE USAGE DATA TO THE USAGE MEASURING SERVER DIRECTLY OR INDIRECTLY

546

USAGE MEASURING SERVER RECEIVES USAGE DATA FOR EACH RESOURCE BY EACH CLIENT AND STORES IT IN THE APPROPRIATE TIME COMPARTMENT OF THE APPROPRIATE USAGE DATA BUFFER

548

USAGE MEASURING SERVER DETERMINES IN ANY WAY WHEN IT IS TIME TO RUN A DISTILLATION PROGRAM FOR A PARTICULAR TIME SEGMENT SUCH AS BY CHECKING CONFIGURATION DATA SETTING A SCHEDULE FOR EXECUTION OF THE DISTILLATION PROGRAM

550

SERVER LAUNCHES DISTILLATION PROGRAM FOR PARTICULAR RESOURCE FOR WHICH USAGE DATA HAS BEEN COLLECTED AND PARTITIONED AND ASSIGNS IT TO PROCESS THE USAGE DATA FOR A PARTICULAR TIME SEGMENT

552

DISTILLATION PROGRAM RETRIEVES THE USAGE DATA AND LICENSE TERMS IF NECESSARY FOR THE PARTICULAR TIME SEGMENT FOR WHICH IT IS EXECUTING, PLUGS THE DATA INTO THE APPROPRIATE FORMULAS AND CONVERTS THE DATA TO METRICS BY EVALUATING THE FORMULAS

554

DISTILLATION PROGRAM STORES METRICS JUST CALCULATED FOR TIME SEGMENT OF INTEREST IN A MEMORY PORTION DEDICATED TO STORING METRICS FOR THAT TIME SEGMENT

FIG. 16

Serial No.: 10/002,557   Inventor: RAMACHANDRAN , et al.   Docket No.: COM-002.4D
Title: P███S IN A USAGE BASED LICENSING SERVER TO C██T METRIC DATA IN DATA
         S█████URE TO CSU DATA

19 / 28

ROLLUP A ID 39

	MON	TUES	WED	
M1=CPU	10	1	0	⋯
M2=DOCS	500	50	0	⋯
M3=#PGS	759	71	0	⋯

FIG. 17

ALTERNATIVE ROLLUP B ID 40

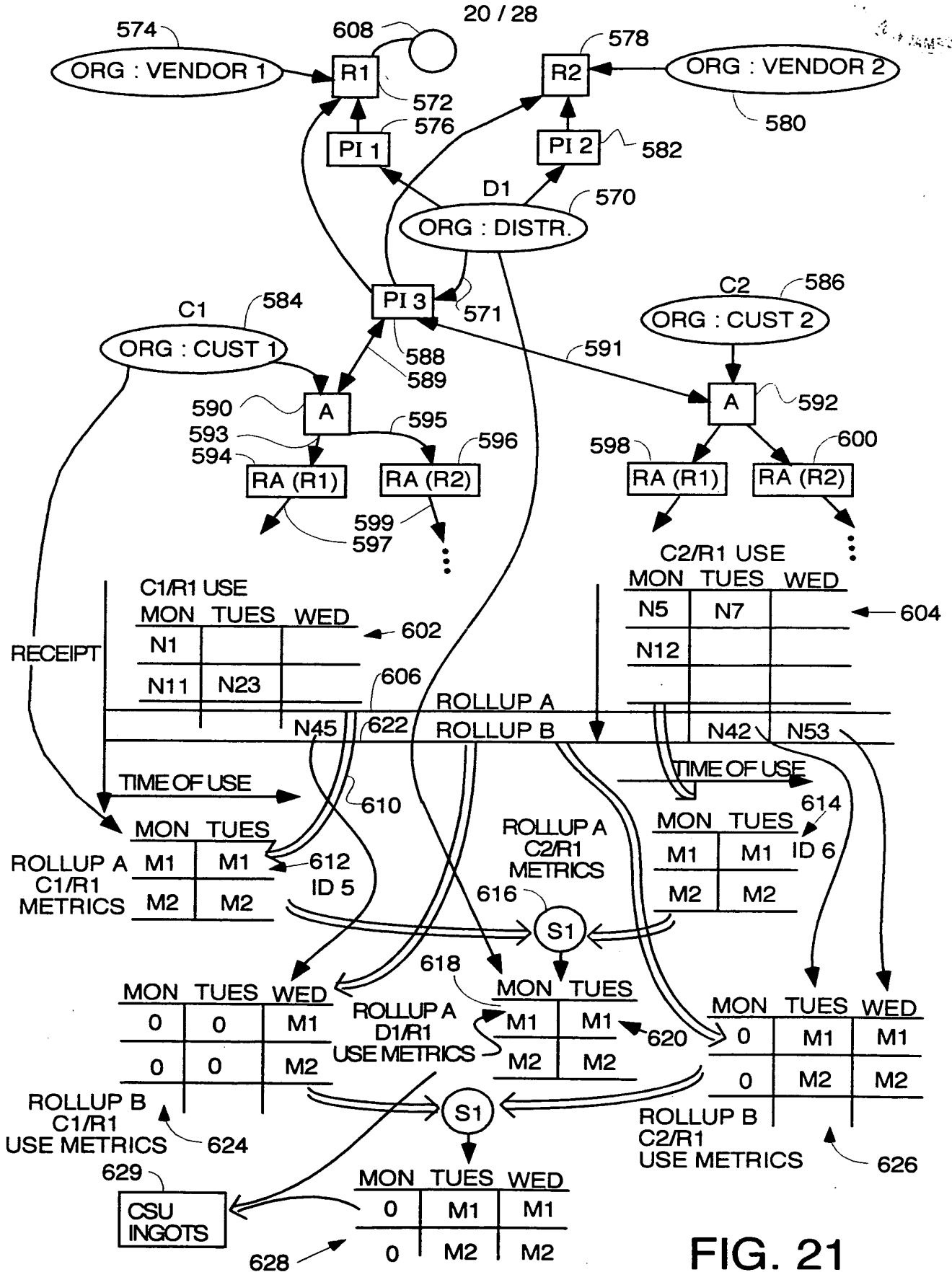| MON	TUES	WED
0	3	2
0	70	40
0	139	96

FIG. 18

PREFERRED ROLLUP B ID 50

MON	TUES	WED	
10	4	2	
500	120	40	
759	210	96	

FIG. 19

ALTERNATIVE ROLLUP B ID 40

MON	TUES	WED
0	4	2
0	120	40
0	210	96

FIG. 20

20 / 28

574   608

ORG : VENDOR 1   R1

572
576

PI 1

R2   578

ORG : VENDOR 2
580

PI 2   582

D1   570

ORG : DISTR.

C1   584

ORG : CUST 1   PI 3   571

588
589

590
593
594

A

595

596

RA (R1)   RA (R2)

C2   586

ORG : CUST 2

591   A   592

598   RA (R1)   RA (R2)   600

599
597

C2/R1 USE

MON	TUES	WED
N5	N7	
N12		

← 604

C1/R1 USE

MON	TUES	WED
N1		
N11	N23	

← 602

606

RECEIPT

N45   622

ROLLUP A
ROLLUP B   N42   N53

TIME OF USE

ROLLUP A
C1/R1
METRICS

MON	TUES
M1	M1
M2	M2

612
ID 5

610

ROLLUP A
C2/R1
METRICS

TIME OF USE

614

MON	TUES
M1	M1 ID 6
M2	M2

616

S1

618

ROLLUP A
D1/R1
USE METRICS

MON	TUES	WED
0	0	M1
0	0	M2

ROLLUP B
C1/R1
USE METRICS   624

MON	TUES
M1	M1
M2	M2

620

MON	TUES	WED
0	M1	M1
0	M2	M2

ROLLUP B
C2/R1
USE METRICS   626

S1

629

CSU
INGOTS

MON	TUES	WED
0	M1	M1
0	M2	M2

628

FIG. 21

Serial No.: 10/002,557   Inventor: RAMACHANDRAN , et al.   Docket No.: COM-002.4D
Title: P   S IN A USAGE BASED LICENSING SERVER TO C   METRIC DATA IN DATA
            ST   URE TO CSU DATA

21 / 28

PROCESS FOR ONE PROTOCOL ACCESS TO USAGE/METRIC/CSU DATA
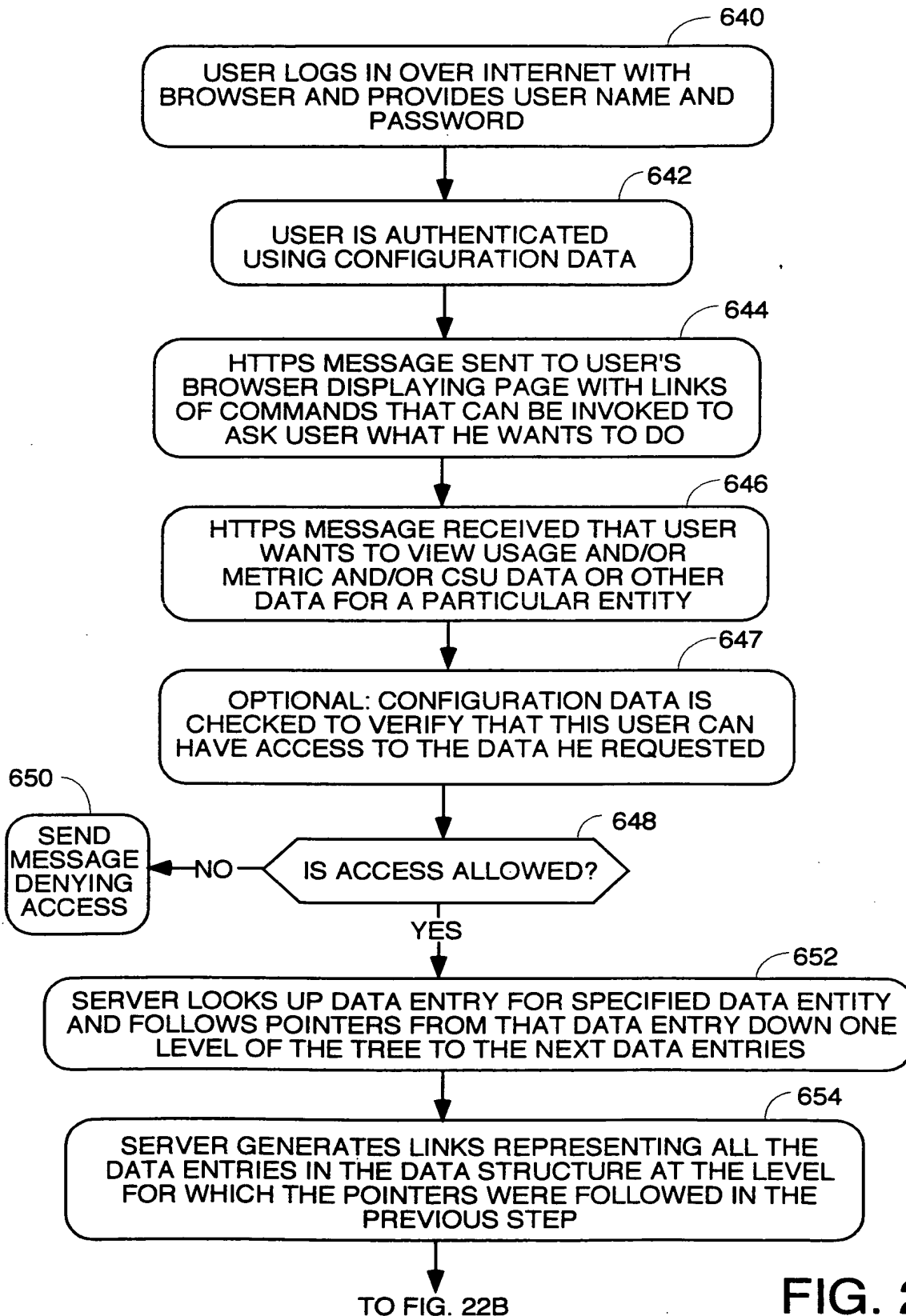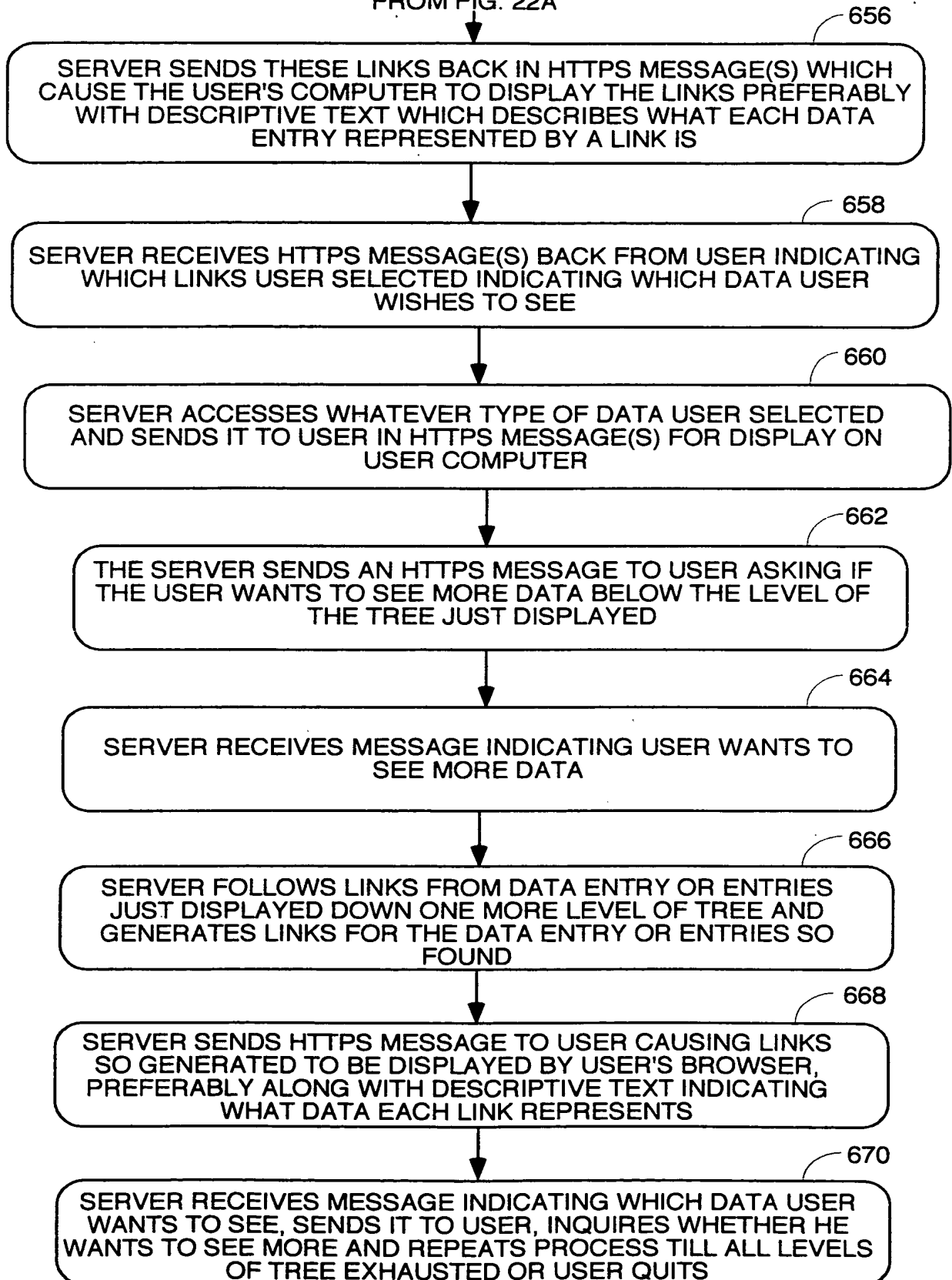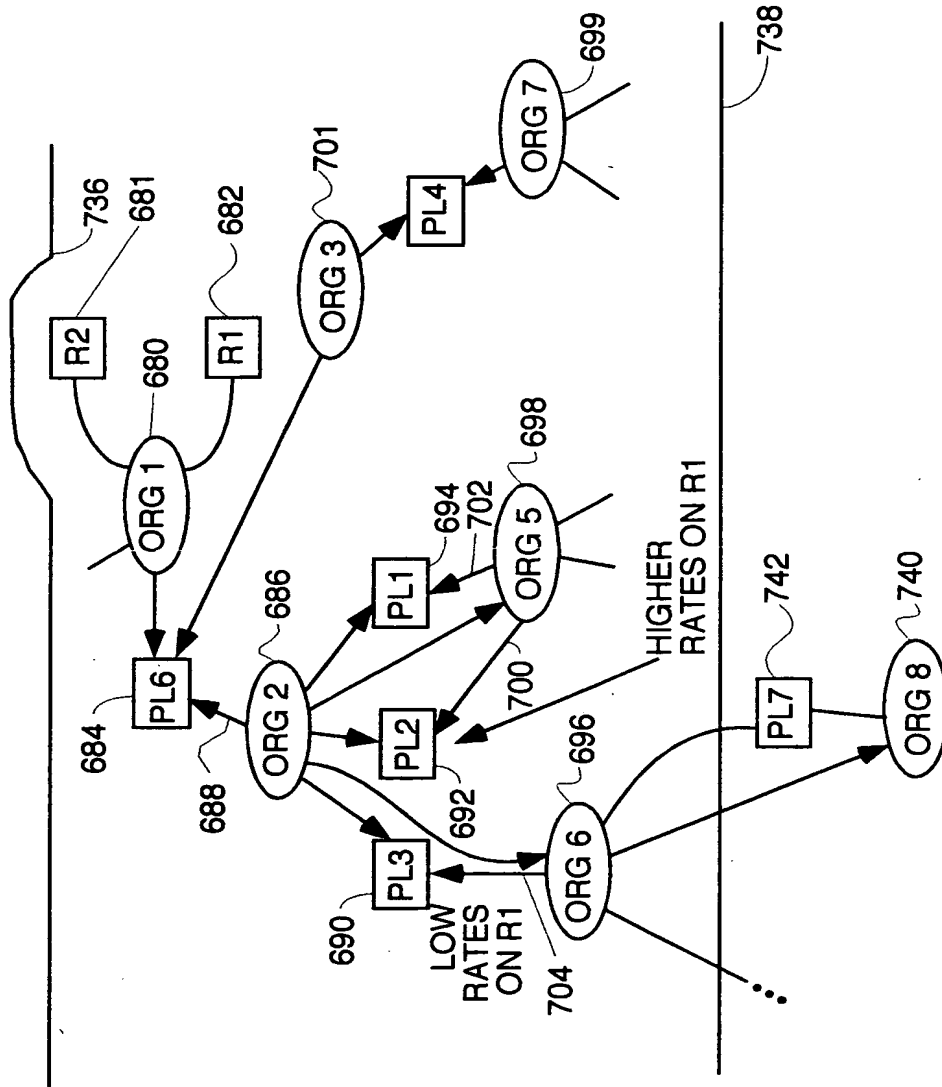FOR ALL LICENSEES OF A LICENSOR FROM A USAGE MEASURING SERVER

640

USER LOGS IN OVER INTERNET WITH
BROWSER AND PROVIDES USER NAME AND
PASSWORD

642

USER IS AUTHENTICATED
USING CONFIGURATION DATA

644

HTTPS MESSAGE SENT TO USER'S
BROWSER DISPLAYING PAGE WITH LINKS
OF COMMANDS THAT CAN BE INVOKED TO
ASK USER WHAT HE WANTS TO DO

646

HTTPS MESSAGE RECEIVED THAT USER
WANTS TO VIEW USAGE AND/OR
METRIC AND/OR CSU DATA OR OTHER
DATA FOR A PARTICULAR ENTITY

647

OPTIONAL: CONFIGURATION DATA IS
CHECKED TO VERIFY THAT THIS USER CAN
HAVE ACCESS TO THE DATA HE REQUESTED

650

SEND
MESSAGE
DENYING
ACCESS

NO

648

IS ACCESS ALLOWED?

YES

652

SERVER LOOKS UP DATA ENTRY FOR SPECIFIED DATA ENTITY
AND FOLLOWS POINTERS FROM THAT DATA ENTRY DOWN ONE
LEVEL OF THE TREE TO THE NEXT DATA ENTRIES

654

SERVER GENERATES LINKS REPRESENTING ALL THE
DATA ENTRIES IN THE DATA STRUCTURE AT THE LEVEL
FOR WHICH THE POINTERS WERE FOLLOWED IN THE
PREVIOUS STEP

TO FIG. 22B

FIG. 22A

22 / 28

FROM FIG. 22A

656

SERVER SENDS THESE LINKS BACK IN HTTPS MESSAGE(S) WHICH CAUSE THE USER'S COMPUTER TO DISPLAY THE LINKS PREFERABLY WITH DESCRIPTIVE TEXT WHICH DESCRIBES WHAT EACH DATA ENTRY REPRESENTED BY A LINK IS

658

SERVER RECEIVES HTTPS MESSAGE(S) BACK FROM USER INDICATING WHICH LINKS USER SELECTED INDICATING WHICH DATA USER WISHES TO SEE

660

SERVER ACCESSES WHATEVER TYPE OF DATA USER SELECTED AND SENDS IT TO USER IN HTTPS MESSAGE(S) FOR DISPLAY ON USER COMPUTER

662

THE SERVER SENDS AN HTTPS MESSAGE TO USER ASKING IF THE USER WANTS TO SEE MORE DATA BELOW THE LEVEL OF THE TREE JUST DISPLAYED

664

SERVER RECEIVES MESSAGE INDICATING USER WANTS TO SEE MORE DATA

666

SERVER FOLLOWS LINKS FROM DATA ENTRY OR ENTRIES JUST DISPLAYED DOWN ONE MORE LEVEL OF TREE AND GENERATES LINKS FOR THE DATA ENTRY OR ENTRIES SO FOUND

668

SERVER SENDS HTTPS MESSAGE TO USER CAUSING LINKS SO GENERATED TO BE DISPLAYED BY USER'S BROWSER, PREFERABLY ALONG WITH DESCRIPTIVE TEXT INDICATING WHAT DATA EACH LINK REPRESENTS

670

SERVER RECEIVES MESSAGE INDICATING WHICH DATA USER WANTS TO SEE, SENDS IT TO USER, INQUIRES WHETHER HE WANTS TO SEE MORE AND REPEATS PROCESS TILL ALL LEVELS OF TREE EXHAUSTED OR USER QUITS

FIG. 22B

Serial No.: 10/002,557   Inventor: RAMACHANDRAN , et al.   Docket No.: COM-002.4D

Title: PR●●●S IN A USAGE BASED LICENSING SERVER TO CO●●●T METRIC DATA IN DATA
           ST●●●URE TO CSU DATA

23 / 28

SECURITY BARRIERS

FIG. 23

Serial No.: 10/002,557   Inventor: RAMACHANDRAN , et al.   Docket No.: COM-002.4D
Title: PR●●●● IN A USAGE BASED LICENSING SERVER TO CO●●● METRIC DATA IN DATA
              ST●●●URE TO CSU DATA

24 / 28

A PROCESS TO IMPLEMENT SECURITY BARRIERS TO PREVENT USERS FROM
VIEWING DATA IN A USAGE MEASURING SERVER DATA STRUCTURE THAT THE
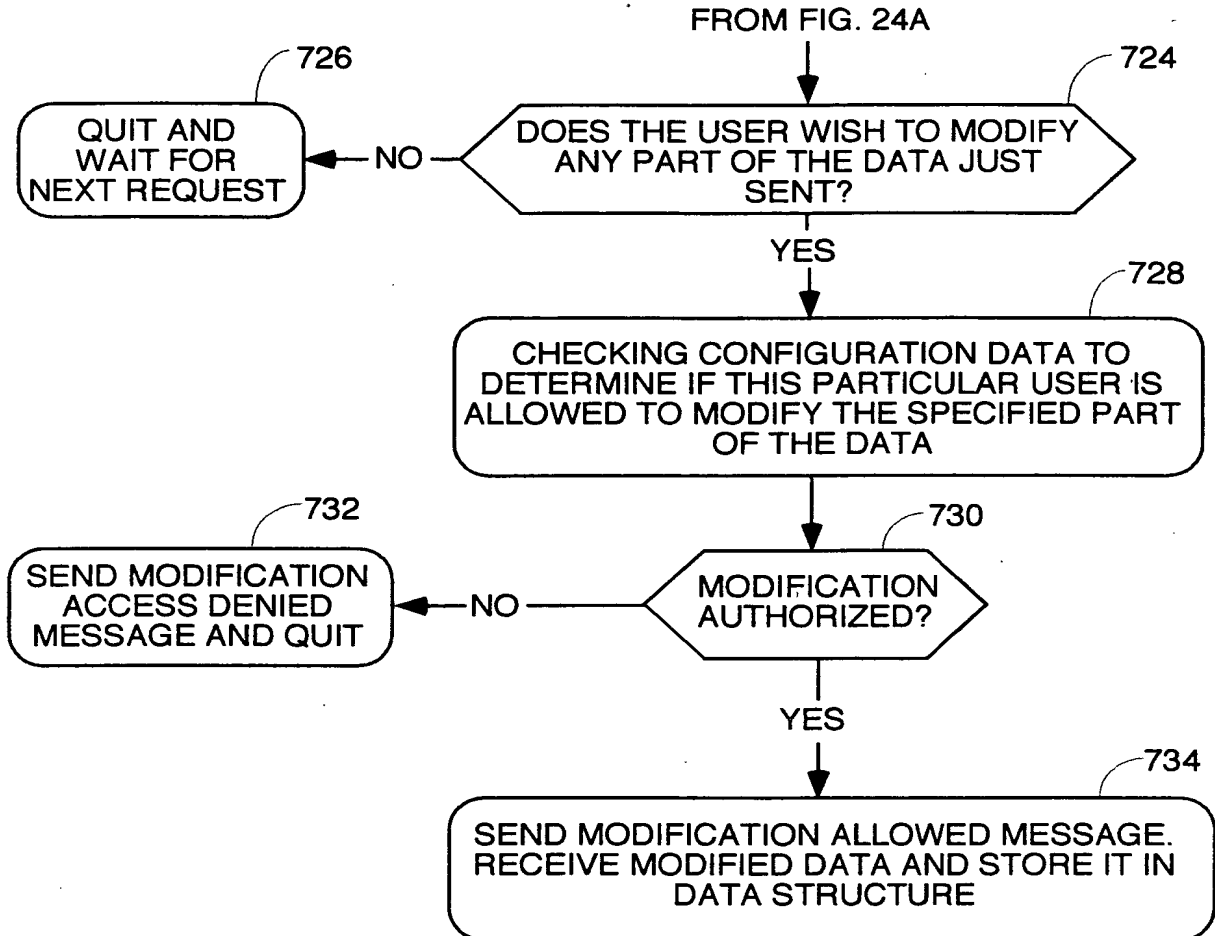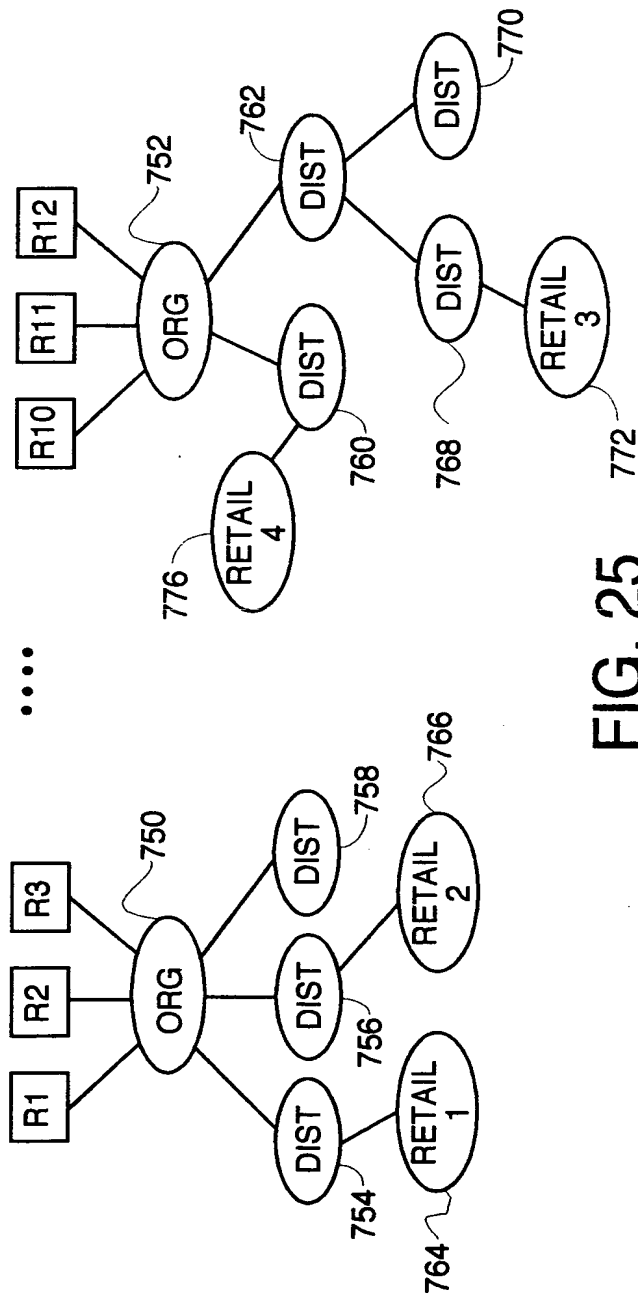USER NOT AUTHORIZED TO VIEW

706

RECEIVING A LOG IN
COMMUNICATION AND
AUTHENTICATING THE USER

710

SEND ACCESS
DENIED
MESSAGE AND
QUIT

←NO

708

USER
AUTHENTICATED?

YES

712

SEND INQUIRY MESSAGE TO USER
REQUESTING USER TO IDENTIFY WHICH
DATA IN USAGE MEASURING SERVER DATA
STRUCTURE IS OF INTEREST

714

RECEIVING MESSAGE INDICATING WHICH
DATA IS OF INTEREST

718

SEND
ACCESS
DENIED
MESSAGE
AND QUIT

←NO

716

ARE THERE LINKS IN THE DATA STRUCTURE
WHICH DIRECTLY OR INDIRECTLY COUPLE THE
USER'S DATA ENTRY TO THE REQUESTED DATA?

720

RETRIEVE THE REQUESTED DATA TO WHICH THE
USER IS DIRECTLY OR INDIRECTLY LINKED AND
SEND IT TO USER

722

SENDING A MESSAGE INQUIRING WHETHER
USER WISHES TO MODIFY ANY OF THE
DATA JUST SENT

TO FIG. 24B

FIG. 24A

Serial No.: 10/002,557   Inventor: RAMACHANDRAN , et al.   Docket No.: COM-002.4D
Title: PR●●● IN A USAGE BASED LICENSING SERVER TO CO●●● METRIC DATA IN DATA
          ST●●●URE TO CSU DATA

25 / 28

FROM FIG. 24A

726

QUIT AND
WAIT FOR
NEXT REQUEST

◄─ NO ─

724

DOES THE USER WISH TO MODIFY
ANY PART OF THE DATA JUST
SENT?

YES

728

CHECKING CONFIGURATION DATA TO
DETERMINE IF THIS PARTICULAR USER IS
ALLOWED TO MODIFY THE SPECIFIED PART
OF THE DATA

732

SEND MODIFICATION
ACCESS DENIED
MESSAGE AND QUIT

◄─ NO ─

730

MODIFICATION
AUTHORIZED?

YES

734

SEND MODIFICATION ALLOWED MESSAGE.
RECEIVE MODIFIED DATA AND STORE IT IN
DATA STRUCTURE

FIG. 24B

Serial No.: 10/002,557   Inventor: RAMACHANDRAN , et al.   Docket No.: COM-002.4D
Title: PR●●●S IN A USAGE BASED LICENSING SERVER TO CO●●●T METRIC DATA IN DATA STR●●URE TO CSU DATA

26 / 28

FIG. 25

FIG. 26

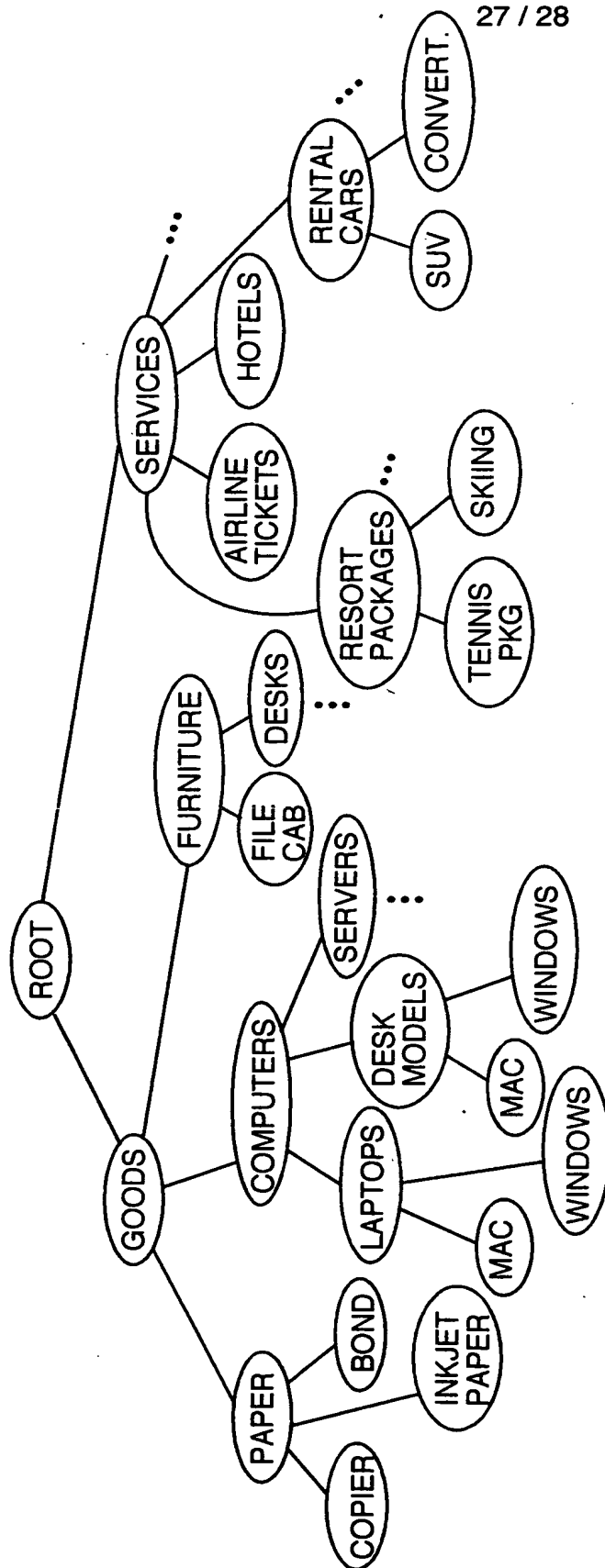27 / 28

TAXONOMY CATEGORIES

FIG. 27

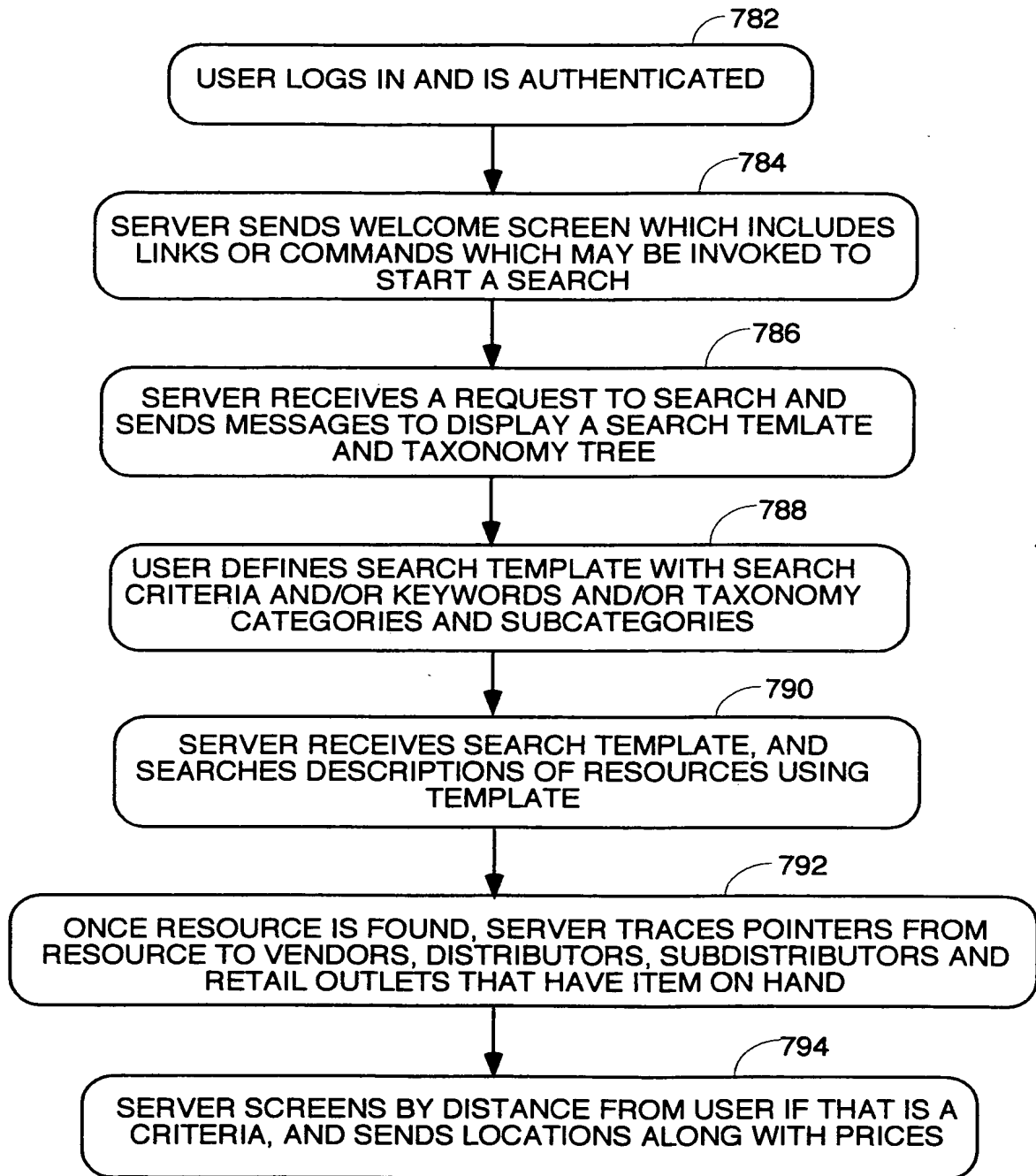## SERVER PROCESSING TO IMPLEMENT ONE-STOP SHOPPING SEARCHING OF THE DATA STRUCTURE BASED UPON USER-DEFINED CRITERIA

782

USER LOGS IN AND IS AUTHENTICATED

784

SERVER SENDS WELCOME SCREEN WHICH INCLUDES LINKS OR COMMANDS WHICH MAY BE INVOKED TO START A SEARCH

786

SERVER RECEIVES A REQUEST TO SEARCH AND SENDS MESSAGES TO DISPLAY A SEARCH TEMLATE AND TAXONOMY TREE

788

USER DEFINES SEARCH TEMPLATE WITH SEARCH CRITERIA AND/OR KEYWORDS AND/OR TAXONOMY CATEGORIES AND SUBCATEGORIES

790

SERVER RECEIVES SEARCH TEMPLATE, AND SEARCHES DESCRIPTIONS OF RESOURCES USING TEMPLATE

792

ONCE RESOURCE IS FOUND, SERVER TRACES POINTERS FROM RESOURCE TO VENDORS, DISTRIBUTORS, SUBDISTRIBUTORS AND RETAIL OUTLETS THAT HAVE ITEM ON HAND

794

SERVER SCREENS BY DISTANCE FROM USER IF THAT IS A CRITERIA, AND SENDS LOCATIONS ALONG WITH PRICES

FIG.28